

**NOISE LAB**  
**REPORT Number A-2020LAB-106-10-44141\_E**

**Customer :** Texdecor  
Rue d'Hem, 2  
59780 Willems  
France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 alternating blades 1200 mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
part 1 : Calculation of the absorption of sound by the atmosphere  
ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
BELAC is a signatory of all existing multilateral agreements and recognition agreements of International Laboratory Accreditation Cooperation (ILAC).  
In this way, reports issued by BELAC accredited bodies are internationally accredited.

<b>Date and reference of the request:</b>	7/10/2020	2020LAB-106
<b>Date of receipt of the specimen(s):</b>	5/11/2020	10
<b>Date of construction:</b>	6/11/2020	
<b>Date of tests:</b>	6/11/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees



Laboratory Engineer,

Els Meulemans



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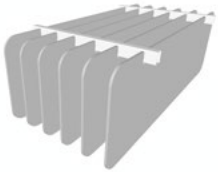
## SUMMERY

### NOISE LAB REPORT SLIMPANEL LOUVRE

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Device, method of measurement and calculation \_\_\_\_\_ Page 3 to 6

#### **THE CLASSICS**

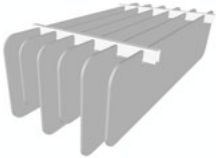


Test report : louvre with 12 blades of 1200x200mm \_\_\_\_\_ Page 7 to 11

Test report : louvre with 12 blades of 1200x300mm \_\_\_\_\_ Page 12 to 16

Test report : louvre with 12 blades of 1200x400mm \_\_\_\_\_ Page 17 to 21

#### **THE ALTERNATIVES**

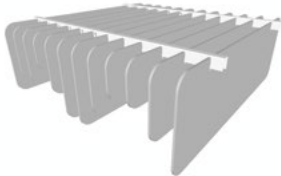


Test report : louvre with 12 alternating blades( 200mm/ 300mm) \_\_\_\_\_ Page 22 to 26

Test report : louvre with 12 alternating blades (300mm/ 400mm) \_\_\_\_\_ Page 27 to 31

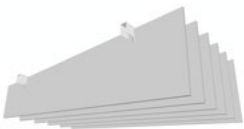
Test report : louvre with 12 alternating blades (200mm/ 400mm) \_\_\_\_\_ Page 32 to 36

#### **THE WAVE**

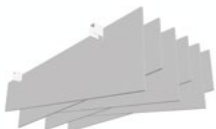


Test report : louvre with 12 alternating blades (200mm/300mm/400mm) \_\_\_\_\_ Page 37 to 41

#### **THE TRAPEZIUMS**



Test report : louvre with 12 trapezium blades \_\_\_\_\_ Page 42 to 46



Test report : louvre with 12 alternating trapezium blades \_\_\_\_\_ Page 47 to 51

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**MEASURING EQUIPMENT**

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**Signal**

Brüel & Kjaer - 4292 : Omni Power Sound Source

**Microphone system:**

Brüel & Kjaer - 4189-L-001 : 1/2" free field microphone prepolarized, inclusive 2669L TEDS  
 Brüel & Kjaer - 4189 : 1/2" free field microphone, 6Hz to 20kHz, prepolarized  
 Brüel & Kjaer - 2669 : 1/2" microphone preamplifier  
 Brüel & Kjaer - 4231 : Sound calibrator 94&114dB SPL-1000Hz, Fulfil IEC 60942(2003)Class1

Number of source positions:	2	(Different sound source positions at least 3m apart.
Number of microphone positions for each source position:	8	The measurements shall be made with different microphone positions
Number of measured decays curves:	3	which are at least 1,5m apart, 2m from any sound source and 1m from
Total number of measurements with different positions for microphone & source:	16	any room surface and the test specimen.)

**Signal processing**

Brüel & Kjaer - 2716C : Power amplifier  
 Brüel & Kjaer - 3050-A-6/0: Signal generator, 6-ch. Inputmodule LAN-XI  
 Brüel & Kjaer - 3160-A-042: Signal generator, 4/2-ch. Input/output module LAN-XI  
 Brüel & Kjaer : PULSE Labshop Version 13.5  
 A PC with all necessary software

**Reverberation room**

Dimensions of the room:	Total volume :	298,31 m <sup>3</sup>
	Length:	9,98 m
	Width	4,97 m
	Height	5,99 m
	Volume door niche :	1,32 m <sup>3</sup>
	Total area:	279,95 m <sup>2</sup>
	$I_{\max} = 12,65 \text{ m} < 1,9 \text{ V}^{1/2}$	

In order to improve the diffusivity, the use of diffusers is necessary

The test specimen shall have a maximum area of 15,62 m<sup>2</sup>, which depends on the room volume

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#### TEST METHOD

The tests were conducted in accordance with the provisions of the test method EN ISO354:2003. A detailed description of the test set up has been given in the figures of annex 1 of this report.

The measurement method can be simply described as follows:

Essence of the test is in measuring of the reverberation time in the empty reflecting room and in the same room with the test sample inside it. The sound-absorption properties of a material depend on how the material is mounted during the test. Annex B of ISO 354:2003 specifies several different standard mountings that shall be used during a test for sound absorption. Normally a test specimen is tested using only one of the specified mountings.

From these reverberation times, the equivalent sound absorption area of the test specimen, is calculated by using Sabine's equation. Measurement is carried out in ranges of 1/3 octave and interval from 100Hz to 5000Hz.

The equivalent sound absorption area of the empty reverberation room,  $A_1$ , in square metres, shall be calculated using the formula (1) :

$$A_1 = 55,3 V / (c_1 T_1) - 4Vm_1 \quad [m^2] \quad (1)$$

The equivalent sound absorption area of the reverberation room containing a test specimen,  $A_2$ , in square metres, shall be calculated using the formula (2) :

$$A_2 = 55,3 V / (c_2 T_2) - 4Vm_2 \quad [m^2] \quad (2)$$

The equivalent sound absorption area of the test specimen,  $A_T$ , in square metres, shall be calculated using the formula (3) :

$$A_T = A_2 - A_1 = 55,3 V (1/c_2 T_2 - 1/c_1 T_1) - 4V(m_2 - m_1) \quad [m^2] \quad (3)$$

The sound absorption coefficient of a plane absorber or a specified array of test objects shall be calculated using the formula (4):

$$\alpha_S = A_T / S \quad (4)$$

**NOTE** For discrete objects  $A_{obj}$  is used instead of  $\alpha_s$   
 For a specific array of objects the result is given as  $\alpha_s$

The equivalent sound absorption area of discrete absorbers or individual objects shall be calculated using the formula (5):

$$A_{obj} = A_T / n \quad \text{where } n \text{ is the number of tested objects} \quad (5)$$

whereas:	$A_1$	=	The equivalent sound absorption area of the empty reverberation room in square metres
	$A_2$	=	The equivalent sound absorption area of the reverberation room containing a test specimen in square metres
	$V$	=	volume, in cubic metres, of the empty reverberation room [ $m^3$ ]
	$c_1, c_2$	=	the propagation speed of sound in air, in [m/s], calculated using the formula (in function of the temperature in the room during the test) $c = 331 + 0,6 t$ with $t =$ the air temperature in degrees Celsius for temperatures in the range of 15°C to 30°C
	$T_1$	=	the reverberation time, in seconds, of the empty reverberation room
	$T_2$	=	the reverberation time, in seconds, of the reverberation room after the test specimen has been introduced
	$m_1, m_2$	=	the power attenuation coefficient, in reciprocal metres, calculated according to ISO 9613-1:1993
	$A_T$	=	The equivalent sound absorption area of the test specimen in square metres
	$S$	=	the area, in square metres, covered by the test specimen
	$\alpha_s$	=	the sound absorption coefficient
	$A_{obj}$	=	the equivalent sound absorption area per object
	$n$	=	the number of tested discrete or individual objects

#### SPECIAL MEASUREMENT CONDITIONS

-  
-  
-  
-  
-

n/a

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#### RATING OF SOUND ABSORPTION

##### $\alpha_p$ PRACTICAL SOUND ABSORPTION COEFFICIENT

Frequency-dependent value of the sound absorption coefficient which is based on measurements on one-third-octave bands in accordance with ISO 354 and which is calculated in octave bands in accordance with the standard ISO 11654:1997.

The practical sound absorption coefficient,  $\alpha_{pi}$ , for each octave band  $i$ , is calculated from the arithmetic mean value of the three one-third octave sound absorption coefficients within the octave. The mean value is calculated to the second decimal and rounded in steps of 0,05 and maximized to 1,00 for rounded mean values  $> 1,00$

##### $\alpha_w$ WEIGHTED SOUND ABSORPTION COEFFICIENT

The weighted sound absorption coefficient is determined as a single number value from the practical sound absorption coefficients from 250 Hz to 4000 Hz. The practical sound absorption coefficient is calculated according to ISO 11654:1997.

Single-number frequency-independent value which equals the value of the reference curve at 500 Hz after shifting is as specified in the standard ISO 11654:1997.

##### SHAPE INDICATORS, L,M,H

Whenever a practical sound absorption coefficient  $\alpha_{pi}$  exceeds the value of the shifted reference curve by 0,25 or more, one or more shape indicators shall be added, in parantheses, to the  $\alpha_w$  value.

If the excess absorption occurs at 250 Hz, use the notation L.

If the excess absorption occurs at 500 Hz or 1000 Hz, use the notation M.

If the excess absorption occurs at 2000 Hz or 4000 Hz, use the notation H.

##### NRC NOISE REDUCTION COEFFICIENT

The NRC is a single-number index determined in a lab test and used for rating how absorptive a particular material is. This industry standard ranges from zero (perfectly reflective) to 1 (perfectly absorptive). It is simply the average of the mid-frequency sound absorption coefficients (250, 500, 1000 and 2000 Hertz) rounded to the nearest 5%.

##### SAA SOUND ABSORPTION AVERAGE

NRC is being replaced by the Sound Absorption Average (SAA), which is described in the current ASTM C423-09a. The SAA is a single-number rating of sound absorption properties of a material similar to NRC, except that the sound absorption values employed in the averaging are taken at the twelve one-third octave bands from 200 Hz to 2500 Hz, inclusive, and rounding is to the nearest multiple of 0.01.

**The NRC and SAA results are not within the scope of the accreditation.**

Test results related to tested object only. The test results should not be considered as material constants, the absorption depends not only on the material itself. The method of construction, the size of the material surface and its place in the room, affect the sound absorption characteristics of the test element.

#### ACCURACY

The accuracy of the absorption coefficients as calculated can be expressed in terms of repeatability of measured reverberation times (tests within one laboratory) and reproducibility (between various laboratories)

The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

These relative standard deviations of the reverberation time T20 were calculated and illustrated in annex 1.

The reproducibility of absorption coefficient measurement is still under investigation

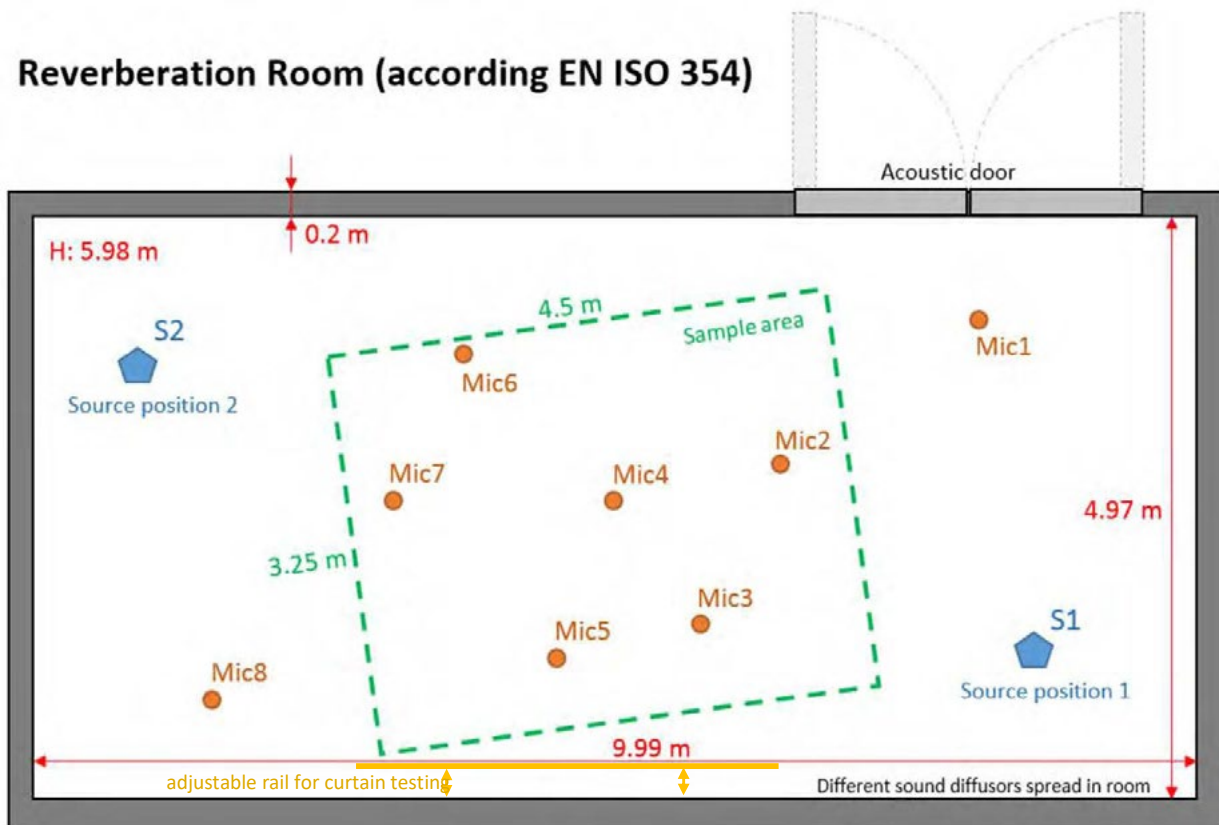
The specific value of uncertainty is available on request

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**ANNEX 4: Sketch of the test room**

The test room was built and finished according ISO 354.

**Reverberation Room (according EN ISO 354)**



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**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 blades 1200x200mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

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 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
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**A<sub>obj</sub>**

**EQUIVALENT SOUND ABSORPTION AREA PER OBJECT**

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

**Identification number of test element:** 5 **Test date:** 5/11/2020

**Reverberation room:** V = 298,3 m<sup>3</sup> S<sub>tot</sub> = 279,9 m<sup>2</sup>

**Room conditions during measurements:**

	Empty room	With testelement
<b>Temperature:</b>	T = 17,7	17,6 °C
<b>Atmospheric pressure:</b>	p = 103,7	103,7 kPa
<b>Relative humidity :</b>	h <sub>r</sub> = 62	63 %

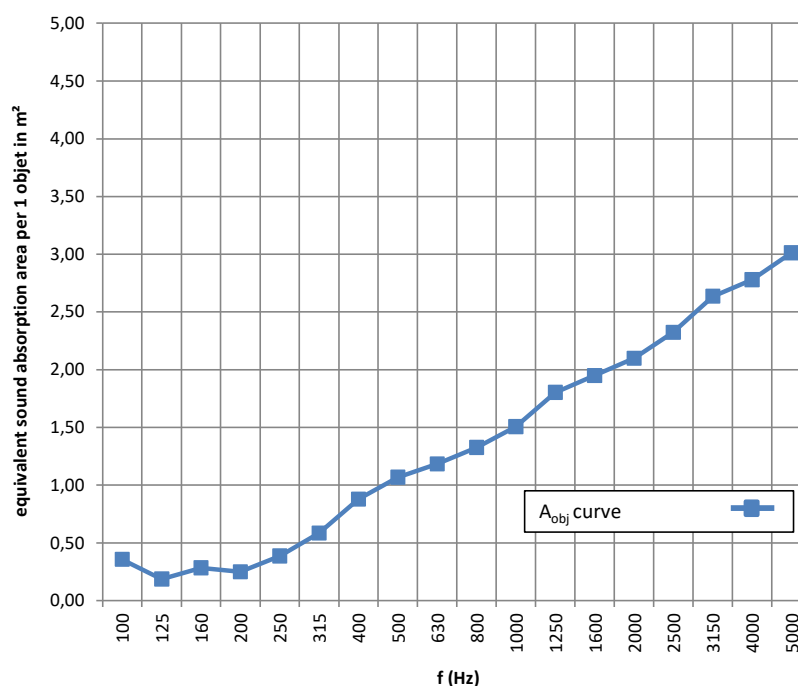
**Type of test element:** individual object

**Construction characteristics:**  
 \* using individual objects

Number of tested objects 2  
 Number of location setups in the reverberation room 2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
<b>63</b>			
80			
100	12,44	10,51	0,4
<b>125</b>	<b>10,03</b>	<b>9,32</b>	<b>0,2</b>
160	9,81	8,80	0,3
200	9,66	8,79	0,3
<b>250</b>	<b>10,27</b>	<b>8,82</b>	<b>0,4</b>
315	10,18	8,17	0,6
400	9,36	6,98	0,9
<b>500</b>	<b>9,13</b>	<b>6,51</b>	<b>1,1</b>
630	9,81	6,63	1,2
800	9,74	6,35	1,3
<b>1000</b>	<b>9,69</b>	<b>6,05</b>	<b>1,5</b>
1250	8,91	5,35	1,8
1600	7,87	4,82	1,9
<b>2000</b>	<b>6,86</b>	<b>4,30</b>	<b>2,1</b>
2500	5,75	3,71	2,3
3150	4,71	3,12	2,6
<b>4000</b>	<b>3,81</b>	<b>2,65</b>	<b>2,8</b>
5000	2,98	2,18	3,0

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,3
250	0,4
500	1,0
1000	1,5
2000	2,1
4000	2,8



**Note:** an individual object is not evaluated according to ISO 11654 ( $\alpha_w$  and class)

**Requested by:** Texdecor, Rue d'Hem, 2,59780 Willems  
**TESTELEMANT:** (product name, for details see Annex 2)

**Baffle elements with 12 blades 1200x200mm - made of Slimpanel 9mm - suspension height 500mm**



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**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	12,44	0,57	10,51	0,53
<b>125</b>	10,03	0,46	9,32	0,44
160	9,81	0,40	8,80	0,38
200	9,66	0,36	8,79	0,34
<b>250</b>	10,27	0,33	8,82	0,31
315	10,18	0,29	8,17	0,26
400	9,36	0,25	6,98	0,21
<b>500</b>	9,13	0,22	6,51	0,19
630	9,81	0,20	6,63	0,17
800	9,74	0,18	6,35	0,14
<b>1000</b>	9,69	0,16	6,05	0,13
1250	8,91	0,14	5,35	0,11
1600	7,87	0,11	4,82	0,09
<b>2000</b>	6,86	0,10	4,30	0,08
2500	5,75	0,08	3,71	0,06
3150	4,71	0,06	3,12	0,05
<b>4000</b>	3,81	0,05	2,65	0,04
5000	2,98	0,04	2,18	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,4	0,1	0,1
<b>125</b>	0,2	0,2	0,1
160	0,3	0,2	0,1
200	0,3	0,1	0,1
<b>250</b>	0,4	0,1	0,1
315	0,6	0,1	0,1
400	0,9	0,1	0,1
<b>500</b>	1,1	0,1	0,1
630	1,2	0,1	0,1
800	1,3	0,1	0,1
<b>1000</b>	1,5	0,1	0,1
1250	1,8	0,1	0,1
1600	1,9	0,1	0,1
<b>2000</b>	2,1	0,1	0,1
2500	2,3	0,1	0,1
3150	2,6	0,1	0,1
<b>4000</b>	2,8	0,2	0,1
5000	3,0	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub> (A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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## NOISE LAB REPORT Number A-2020LAB-106-5-44140\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 blades 1200x200mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

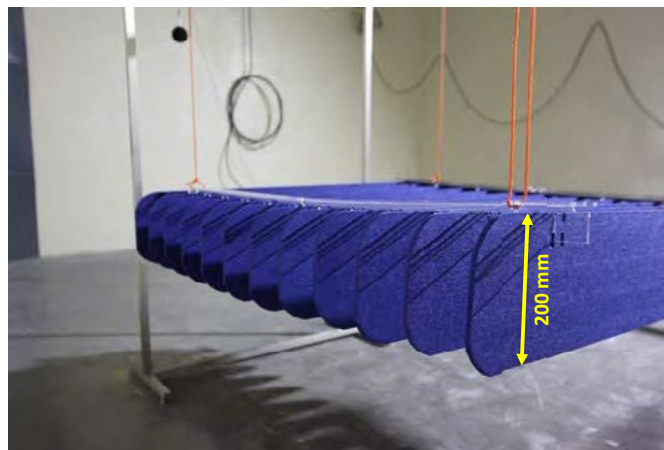
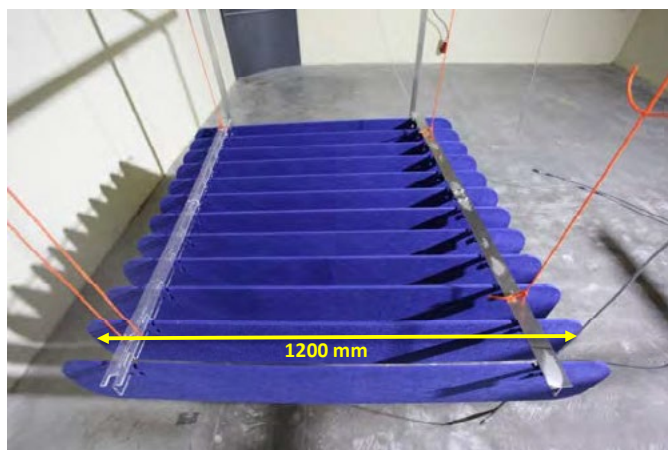
Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades of 1200x200mm

Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades

Product specifications are based on client's declaration



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**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
 In this test one object = 1 baffle element with 12 blades of 1200x200mm

Two baffle elements were randomly hung up on a separate frame in the reverberation room.  
 The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
 Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades  
 Because only 2 individual objects were tested, both were tested on a second location, and the results were averaged



*photo : testarrangement with 2 objects on test setup 1*



*photo : testarrangement with 2 objects on test setup 2*

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**NOISE LAB**  
**REPORT Number A-2020LAB-011-03-44028\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 blades of 1200 x 300 mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere  
 ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
 BELAC is a signatory of all existing multilateral agreements and recognition agreements of International Laboratory Accreditation Cooperation (ILAC).  
 In this way, reports issued by BELAC accredited bodies are internationally accredited.

<b>Date and reference of the request:</b>	21/02/2020	2020LAB-011
<b>Date of receipt of the specimen(s):</b>	16/07/2020	03
<b>Date of construction:</b>	16/07/2020	
<b>Date of tests:</b>	16/07/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

**NOISE LAB**  
**REPORT Number A-2020LAB-011-03-44028\_E**

**A<sub>obj</sub>**

**EQUIVALENT SOUND ABSORPTION AREA PER OBJECT**

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

Identification number of test element: **03**

Test date: 16/07/2020

Reverberation room:

V = 298,3 m<sup>3</sup> S<sub>tot</sub> = 279,9 m<sup>2</sup>

Room conditions during measurements:

Temperature:

Empty room With testelement  
 T = 21,0 21,0 °C

Atmospheric pressure:

p = 101,5 101,6 kPa

Relative humidity :

h<sub>r</sub> = 69 69 %

Type of test element:

individual object

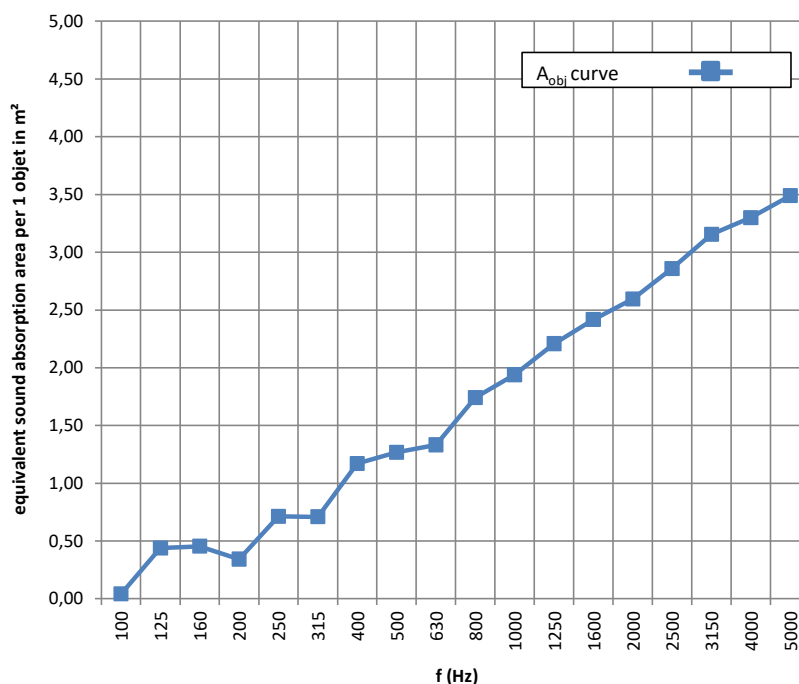
Construction characteristics:

\* using individual objects

Number of tested objects 2  
 Number of location setups in the reverberation room 2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
<b>63</b>			
80			
100	10,93	10,73	0,0
<b>125</b>	<b>9,62</b>	<b>8,19</b>	<b>0,4</b>
160	9,43	8,00	0,5
200	9,92	8,69	0,3
<b>250</b>	<b>9,88</b>	<b>7,64</b>	<b>0,7</b>
315	9,51	7,42	0,7
400	8,89	6,20	1,2
<b>500</b>	<b>8,87</b>	<b>6,04</b>	<b>1,3</b>
630	9,08	6,04	1,3
800	9,02	5,45	1,7
<b>1000</b>	<b>8,84</b>	<b>5,16</b>	<b>1,9</b>
1250	8,30	4,71	2,2
1600	7,51	4,28	2,4
<b>2000</b>	<b>6,66</b>	<b>3,87</b>	<b>2,6</b>
2500	5,75	3,41	2,9
3150	4,89	2,98	3,2
<b>4000</b>	<b>4,08</b>	<b>2,62</b>	<b>3,3</b>
5000	3,24	2,20	3,5

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,3
250	0,6
500	1,3
1000	2,0
2000	2,6
4000	3,3



Note: an individual object is not evaluated according to ISO 11654 ( $\alpha_w$  and class)

Requested by: Texdecor, Rue d'Hem, 2,59780 Willems

TESTELEMANT: (product name, for details see Annex 2)

Baffle elements with 12 blades of 1200 x 300 mm - made of Slimpanel 9mm - suspension height 500mm

**NOISE LAB**  
**REPORT Number A-2020LAB-011-03-44028\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	10,93	0,54	10,73	0,53
<b>125</b>	9,62	0,45	8,19	0,42
160	9,43	0,39	8,00	0,36
200	9,92	0,36	8,69	0,34
<b>250</b>	9,88	0,32	7,64	0,28
315	9,51	0,28	7,42	0,25
400	8,89	0,24	6,20	0,20
<b>500</b>	8,87	0,22	6,04	0,18
630	9,08	0,20	6,04	0,16
800	9,02	0,17	5,45	0,13
<b>1000</b>	8,84	0,15	5,16	0,12
1250	8,30	0,13	4,71	0,10
1600	7,51	0,11	4,28	0,08
<b>2000</b>	6,66	0,09	3,87	0,07
2500	5,75	0,08	3,41	0,06
3150	4,89	0,06	2,98	0,05
<b>4000</b>	4,08	0,05	2,62	0,04
5000	3,24	0,04	2,20	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,0	0,2	0,1
<b>125</b>	0,4	0,2	0,1
160	0,5	0,2	0,1
200	0,3	0,1	0,1
<b>250</b>	0,7	0,1	0,1
315	0,7	0,1	0,1
400	1,2	0,1	0,1
<b>500</b>	1,3	0,1	0,1
630	1,3	0,1	0,1
800	1,7	0,1	0,1
<b>1000</b>	1,9	0,1	0,1
1250	2,2	0,1	0,1
1600	2,4	0,1	0,1
<b>2000</b>	2,6	0,1	0,1
2500	2,9	0,1	0,1
3150	3,2	0,1	0,1
<b>4000</b>	3,3	0,2	0,1
5000	3,5	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub> (A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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N° 451-TEST  
 NBN EN ISO 17025:2017  
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## NOISE LAB REPORT Number A-2020LAB-011-03-44028\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 blades of 1200 x 300 mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

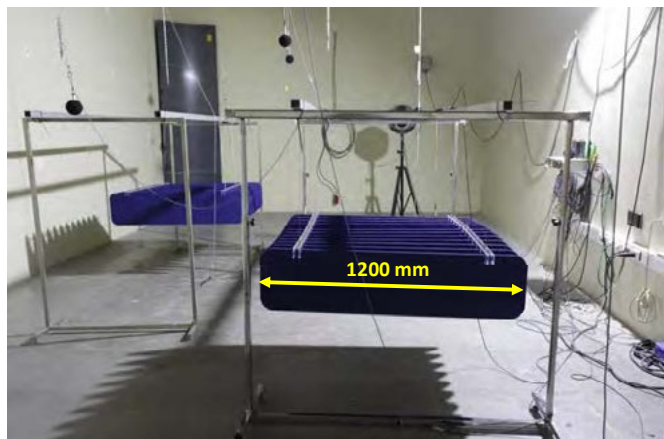
Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades of 1200 x 300 mm

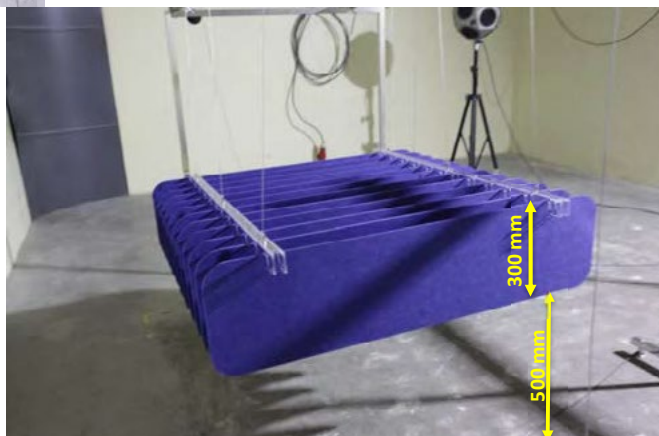
Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 blades of 1200 x 400 mm



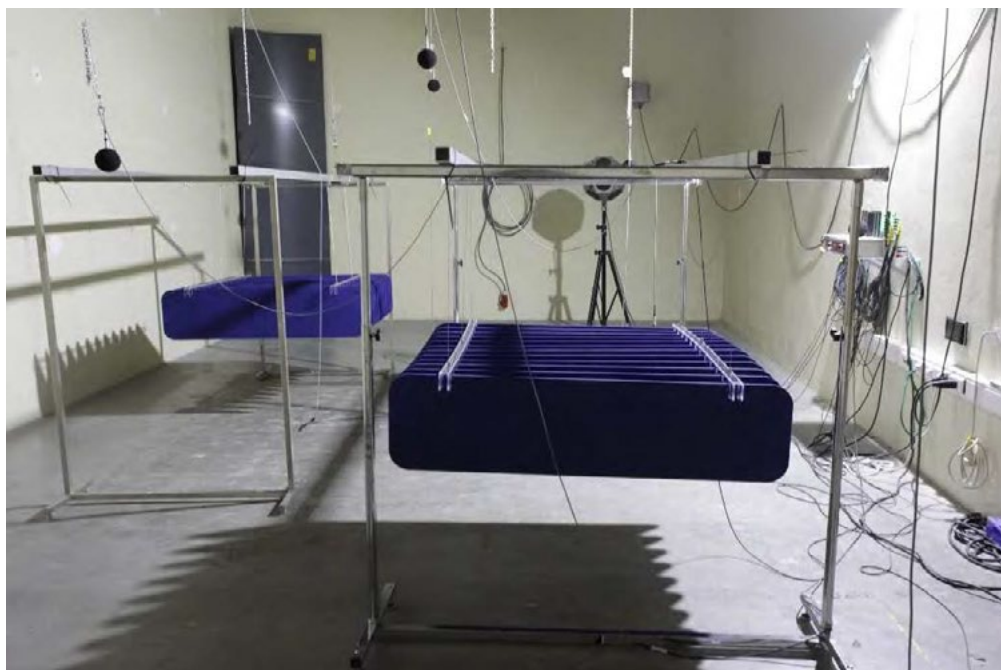
**NOISE LAB**  
**REPORT Number A-2020LAB-011-03-44028\_E**

**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
In this test one object = 1 baffle element with 12 blades of 1200 x 300 mm

Two baffle elements were randomly hung up on a separate frame in the reverberation room.  
The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades



*photo : testarrangement with 2 objects on test setup 1*



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**N° 451-TEST**  
 NBN EN ISO 17025:2017  
 EA MLA signatory

**NOISE LAB**  
**REPORT Number A-2020LAB-106-8-44141\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 blades of 1200 x 400 mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -

part 1 : Calculation of the absorption of sound by the atmosphere  
 ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
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<b>Date and reference of the request:</b>	7/10/2020	2020LAB-106
<b>Date of receipt of the specimen(s):</b>	5/11/2020	8
<b>Date of construction:</b>	6/11/2020	
<b>Date of tests:</b>	6/11/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees

Laboratory Engineer,

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 NBN EN ISO 17025:2017  
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**NOISE LAB**  
**REPORT Number A-2020LAB-106-8-44141\_E**

**A<sub>obj</sub>**

**EQUIVALENT SOUND ABSORPTION AREA PER OBJECT**

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

**Identification number of test element:** 8 **Test date:** 6/11/2020

**Reverberation room:** V = 298,3 m<sup>3</sup> S<sub>tot</sub> = 279,9 m<sup>2</sup>

**Room conditions during measurements:**

	Empty room	With testelement
<b>Temperature:</b>	T = 17,5	17,2 °C
<b>Atmospheric pressure:</b>	p = 103,6	103,0 kPa
<b>Relative humidity :</b>	h <sub>r</sub> = 64	65 %

**Type of test element:** individual object

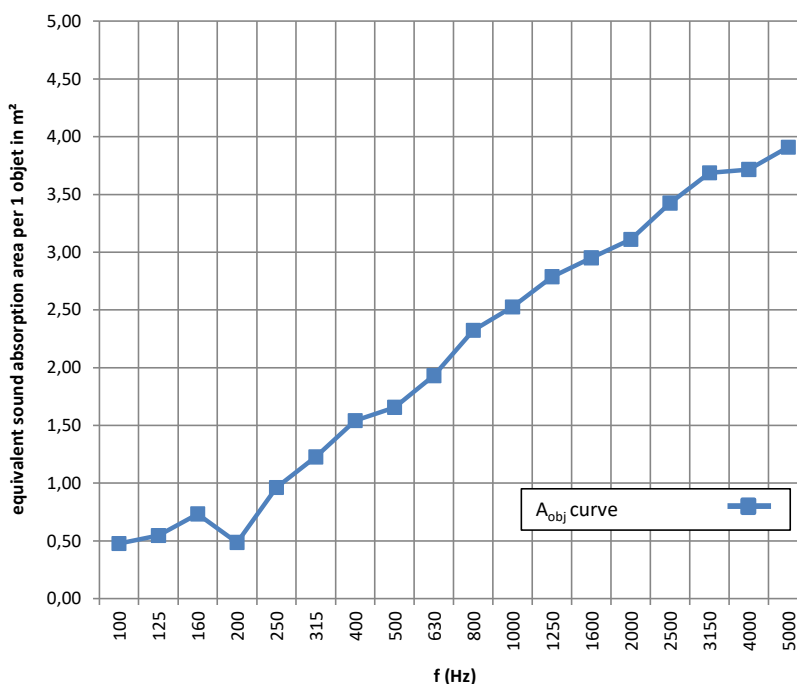
**Construction characteristics:**

\* using individual objects

Number of tested objects 2  
 Number of location setups in the reverberation room 2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
<b>63</b>			
80			
100	12,44	9,99	0,5
<b>125</b>	<b>10,03</b>	<b>8,18</b>	<b>0,5</b>
160	9,81	7,56	0,7
200	9,66	8,09	0,5
<b>250</b>	<b>10,27</b>	<b>7,29</b>	<b>1,0</b>
315	10,18	6,71	1,2
400	9,36	5,86	1,5
<b>500</b>	<b>9,13</b>	<b>5,62</b>	<b>1,7</b>
630	9,81	5,50	1,9
800	9,74	5,03	2,3
<b>1000</b>	<b>9,69</b>	<b>4,82</b>	<b>2,5</b>
1250	8,91	4,39	2,8
1600	7,87	4,01	3,0
<b>2000</b>	<b>6,86</b>	<b>3,64</b>	<b>3,1</b>
2500	5,75	3,16	3,4
3150	4,71	2,73	3,7
<b>4000</b>	<b>3,81</b>	<b>2,39</b>	<b>3,7</b>
5000	2,98	2,00	3,9

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,6
250	0,9
500	1,7
1000	2,5
2000	3,2
4000	3,8



**Note:** an individual object is not evaluated according to ISO 11654 ( $\alpha_w$  and class)

**Requested by:** Texdecor, Rue d'Hem, 2,59780 Willems

**TESTELEMANT:** (product name, for details see Annex 2)

**Baffle elements with 12 blades of 1200 x 400 mm - made of Slimpanel 9mm - suspension height 500mm**

**NOISE LAB**  
**REPORT Number A-2020LAB-106-8-44141\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	12,44	0,57	9,99	0,51
<b>125</b>	10,03	0,46	8,18	0,42
160	9,81	0,40	7,56	0,35
200	9,66	0,36	8,09	0,33
<b>250</b>	10,27	0,33	7,29	0,28
315	10,18	0,29	6,71	0,24
400	9,36	0,25	5,86	0,20
<b>500</b>	9,13	0,22	5,62	0,17
630	9,81	0,20	5,50	0,15
800	9,74	0,18	5,03	0,13
<b>1000</b>	9,69	0,16	4,82	0,11
1250	8,91	0,14	4,39	0,10
1600	7,87	0,11	4,01	0,08
<b>2000</b>	6,86	0,10	3,64	0,07
2500	5,75	0,08	3,16	0,06
3150	4,71	0,06	2,73	0,05
<b>4000</b>	3,81	0,05	2,39	0,04
5000	2,98	0,04	2,00	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,5	0,2	0,1
<b>125</b>	0,5	0,2	0,1
160	0,7	0,2	0,1
200	0,5	0,2	0,1
<b>250</b>	1,0	0,1	0,1
315	1,2	0,1	0,1
400	1,5	0,2	0,1
<b>500</b>	1,7	0,1	0,1
630	1,9	0,1	0,1
800	2,3	0,1	0,1
<b>1000</b>	2,5	0,1	0,1
1250	2,8	0,1	0,1
1600	3,0	0,1	0,1
<b>2000</b>	3,1	0,1	0,1
2500	3,4	0,2	0,1
3150	3,7	0,2	0,1
<b>4000</b>	3,7	0,2	0,1
5000	3,9	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub> (A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-106-8-44141\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 blades of 1200 x 400 mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

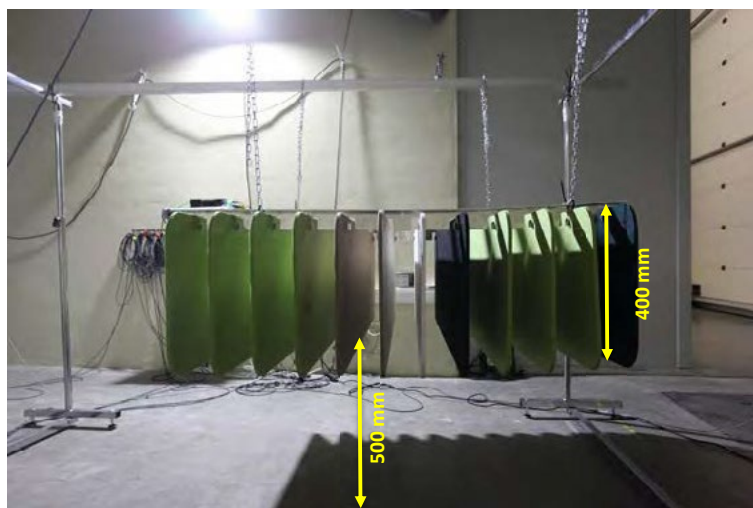
Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades of 1200 x 400 mm

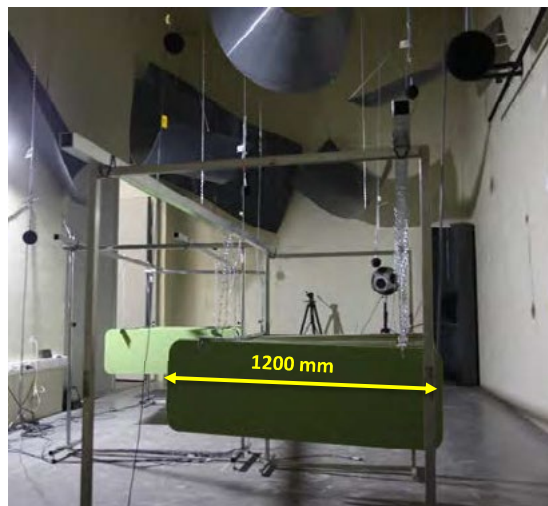
Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 blades of 1200 x 400 mm



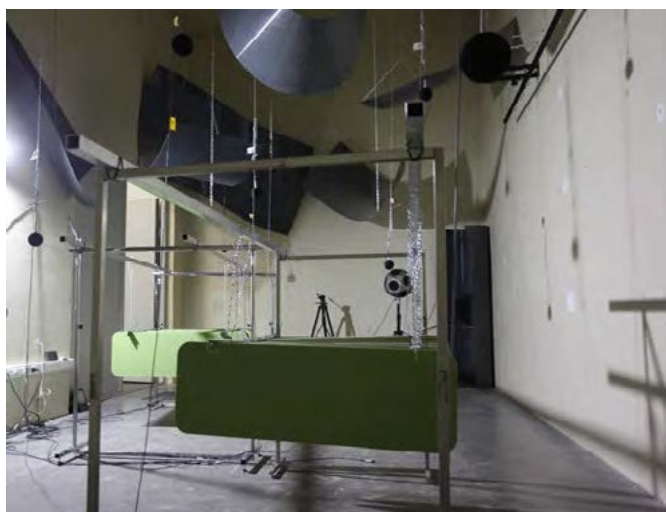
**NOISE LAB**  
**REPORT Number A-2020LAB-106-8-44141\_E**

**ANNEX 4: photographs of the test element or the test arrangement**

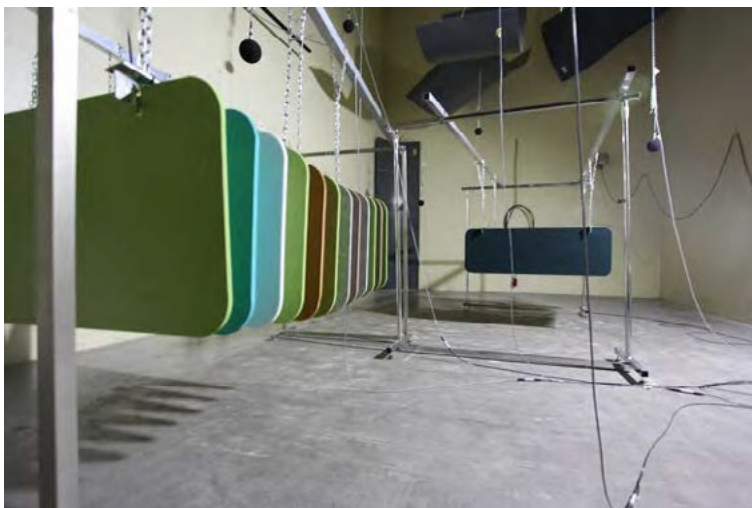
*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
 In this test one object = 1 baffle element with 12 blades of 1200 x 400 mm

Two baffle elements were randomly hung up on a separate frame in the reverberation room.  
 The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
 Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades  
 Because only 2 individual objects were tested, both were tested on a second location, and the results were averaged



*photo : testarrangement with 2 objects on test setup 1*



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N° 451-TEST  
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 EA MLA signatory

**NOISE LAB**  
**REPORT Number A-2020LAB-106-10-44141\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 alternating blades 1200x(300/200) mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere  
 ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
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<b>Date and reference of the request:</b>	7/10/2020	2020LAB-106
<b>Date of receipt of the specimen(s):</b>	5/11/2020	10
<b>Date of construction:</b>	6/11/2020	
<b>Date of tests:</b>	6/11/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-106-10-44141\_E

# A<sub>obj</sub>

### EQUIVALENT SOUND ABSORPTION AREA PER OBJECT

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

Identification number of test element: **10**

Test date: 6/11/2020

Reverberation room:

V = 298,3 m<sup>3</sup>      S<sub>tot</sub> = 279,9 m<sup>2</sup>

Room conditions during measurements:

Temperature:

Empty room      With testelement  
 T = 17,5      17,2 °C

Atmospheric pressure:

p = 103,6      103,0 kPa

Relative humidity :

h<sub>r</sub> = 64      63 %

Type of test element:

individual object

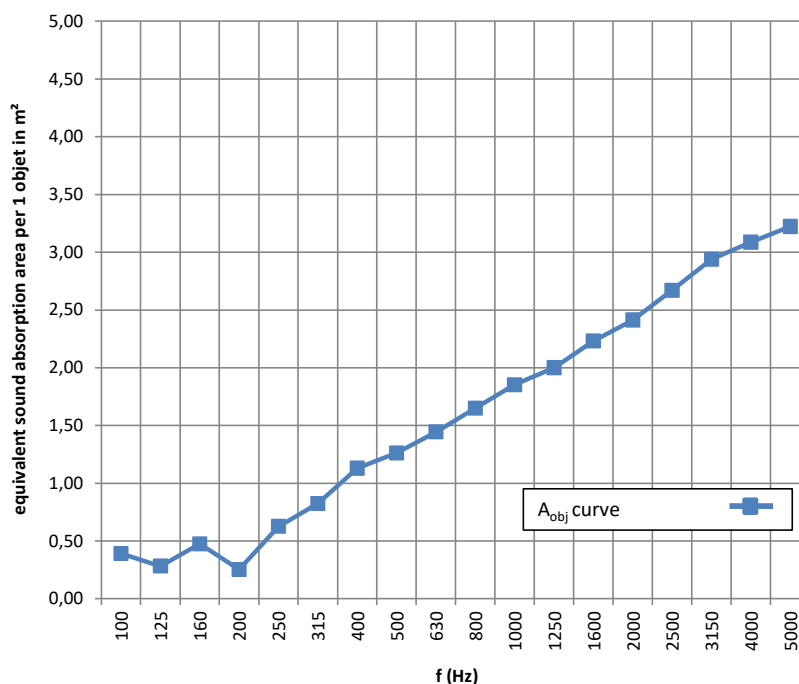
Construction characteristics:

\* using individual objects

Number of tested objects      2  
 Number of location setups in the reverberation room      2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
<b>63</b>			
80			
100	12,44	10,36	0,4
<b>125</b>	<b>10,03</b>	<b>8,98</b>	<b>0,3</b>
160	9,81	8,23	0,5
200	9,66	8,77	0,3
<b>250</b>	<b>10,27</b>	<b>8,10</b>	<b>0,6</b>
315	10,18	7,55	0,8
400	9,36	6,50	1,1
<b>500</b>	<b>9,13</b>	<b>6,18</b>	<b>1,3</b>
630	9,81	6,18	1,4
800	9,74	5,85	1,6
<b>1000</b>	<b>9,69</b>	<b>5,55</b>	<b>1,9</b>
1250	8,91	5,12	2,0
1600	7,87	4,54	2,2
<b>2000</b>	<b>6,86</b>	<b>4,05</b>	<b>2,4</b>
2500	5,75	3,49	2,7
3150	4,71	2,97	2,9
<b>4000</b>	<b>3,81</b>	<b>2,53</b>	<b>3,1</b>
5000	2,98	2,10	3,2

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,4
250	0,6
500	1,3
1000	1,8
2000	2,4
4000	3,1



Note: an individual object is not evaluated according to ISO 11654 (α<sub>w</sub> and class)

Requested by: Texdecor, Rue d'Hem, 2,59780 Willems

TESTELEMANT: (product name, for details see Annex 2)

**Baffle elements with 12 alternating blades 1200x(300/200) mm - made of Slimpanel 9mm - suspension height 500mm**

**NOISE LAB**  
**REPORT Number A-2020LAB-106-10-44141\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	12,44	0,57	10,36	0,52
<b>125</b>	10,03	0,46	8,98	0,44
160	9,81	0,40	8,23	0,37
200	9,66	0,36	8,77	0,34
<b>250</b>	10,27	0,33	8,10	0,29
315	10,18	0,29	7,55	0,25
400	9,36	0,25	6,50	0,21
<b>500</b>	9,13	0,22	6,18	0,18
630	9,81	0,20	6,18	0,16
800	9,74	0,18	5,85	0,14
<b>1000</b>	9,69	0,16	5,55	0,12
1250	8,91	0,14	5,12	0,10
1600	7,87	0,11	4,54	0,09
<b>2000</b>	6,86	0,10	4,05	0,07
2500	5,75	0,08	3,49	0,06
3150	4,71	0,06	2,97	0,05
<b>4000</b>	3,81	0,05	2,53	0,04
5000	2,98	0,04	2,10	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,4	0,1	0,1
<b>125</b>	0,3	0,2	0,1
160	0,5	0,2	0,1
200	0,3	0,1	0,1
<b>250</b>	0,6	0,1	0,1
315	0,8	0,1	0,1
400	1,1	0,1	0,1
<b>500</b>	1,3	0,1	0,1
630	1,4	0,1	0,1
800	1,6	0,1	0,1
<b>1000</b>	1,9	0,1	0,1
1250	2,0	0,1	0,1
1600	2,2	0,1	0,1
<b>2000</b>	2,4	0,1	0,1
2500	2,7	0,1	0,1
3150	2,9	0,2	0,1
<b>4000</b>	3,1	0,2	0,1
5000	3,2	0,2	0,1

ε(α) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub>(α) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen



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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-106-10-44141\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 alternating blades 1200x(300/200) mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

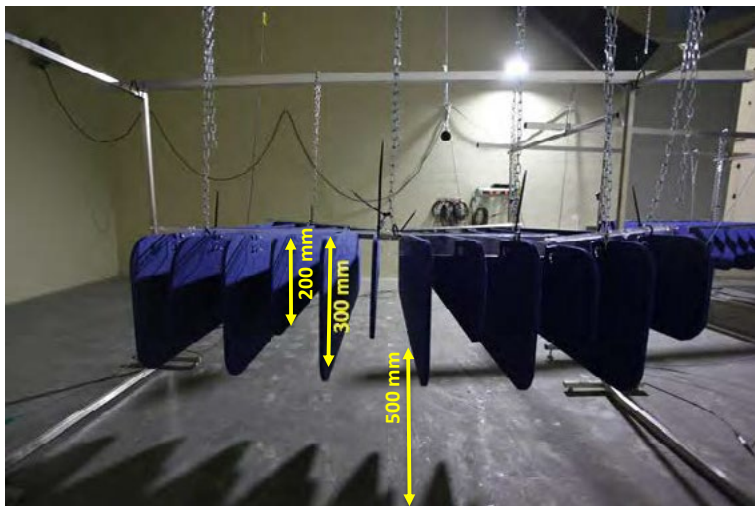
Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades: alternating 6 blades of 1200x300mm and 6 blades of 1200x200mm

Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 300 mm

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 alternating blades of 1200 x (300/200)mm



**NOISE LAB**  
**REPORT Number A-2020LAB-106-10-44141\_E**

**ANNEX 4: photographs of the test element or the test arrangement**

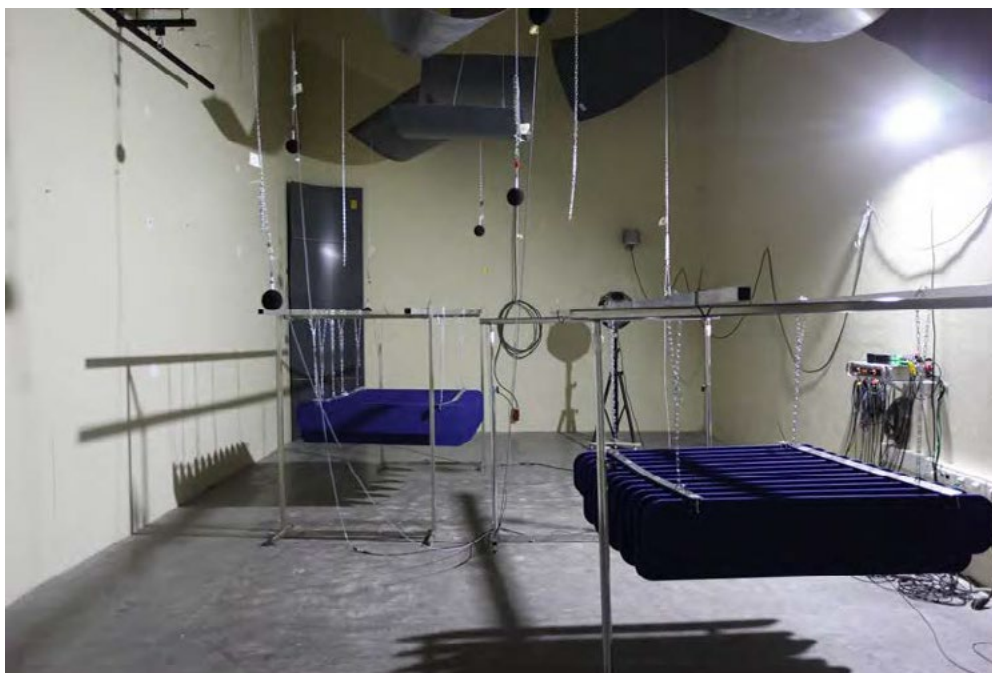
*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
 In this test one object = 1 baffle element with 12 blades (alternating 1200 x 300/200mm)

Two baffle elements were randomly hung up on a separate frame in the reverberation room.

The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
 Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 300mm  
 Because only 2 individual objects were tested, both were tested on a second location, and the results were averaged

*photo : testarrangement with 2 objects on test setup 1*



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**NOISE LAB**  
**REPORT Number A-2020LAB-106-7-44141\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 alternating blades 1200 x (300/400)mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere  
 ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

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<b>Date of preparation of the report:</b>	6/11/2020	

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Technical Manager,

Paul Mees

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## NOISE LAB

### REPORT Number A-2020LAB-106-7-44141\_E

# Aobj

## EQUIVALENT SOUND ABSORPTION AREA PER OBJECT

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

**Identification number of test element:** 7 **Test date:** 6/11/2020

**Reverberation room:** V = 298,3 m<sup>3</sup> S<sub>tot</sub> = 279,9 m<sup>2</sup>

**Room conditions during measurements:**

	Empty room	With testelement
<b>Temperature:</b>	T = 17,5	17,2 °C
<b>Atmospheric pressure:</b>	p = 103,6	102,9 kPa
<b>Relative humidity :</b>	h <sub>r</sub> = 64	65 %

**Type of test element:** individual object

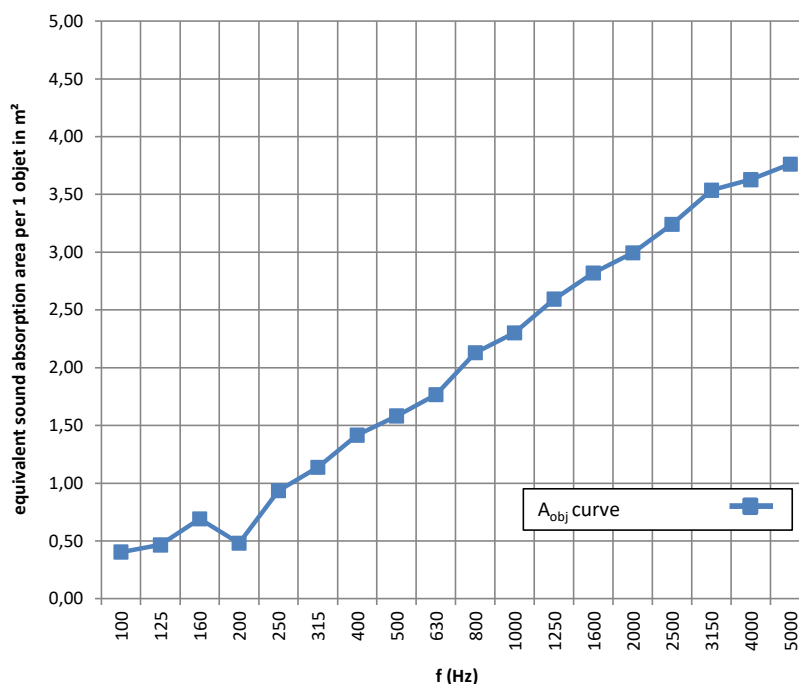
**Construction characteristics:**

\* using individual objects

Number of tested objects	2
Number of location setups in the reverberation room	2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
63			
80			
100	12,44	10,30	0,4
125	10,03	8,42	0,5
160	9,81	7,66	0,7
200	9,66	8,11	0,5
250	10,27	7,35	0,9
315	10,18	6,89	1,1
400	9,36	6,05	1,4
500	9,13	5,72	1,6
630	9,81	5,72	1,8
800	9,74	5,24	2,1
1000	9,69	5,04	2,3
1250	8,91	4,56	2,6
1600	7,87	4,10	2,8
2000	6,86	3,71	3,0
2500	5,75	3,24	3,2
3150	4,71	2,79	3,5
4000	3,81	2,42	3,6
5000	2,98	2,03	3,8

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,5
250	0,9
500	1,6
1000	2,3
2000	3,0
4000	3,6



**Note:** an individual object is not evaluated according to ISO 11654 (α<sub>w</sub> and class)

**Requested by:** Texdecor, Rue d'Hem, 2,59780 Willems

**TESTELEMANT:** (product name, for details see Annex 2)

**Baffle elements with 12 alternating blades 1200 x (300/400)mm - made of Slimpanel 9mm - suspension height 500mm**

**NOISE LAB**  
**REPORT Number A-2020LAB-106-7-44141\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	12,44	0,57	10,30	0,52
<b>125</b>	10,03	0,46	8,42	0,42
160	9,81	0,40	7,66	0,36
200	9,66	0,36	8,11	0,33
<b>250</b>	10,27	0,33	7,35	0,28
315	10,18	0,29	6,89	0,24
400	9,36	0,25	6,05	0,20
<b>500</b>	9,13	0,22	5,72	0,17
630	9,81	0,20	5,72	0,15
800	9,74	0,18	5,24	0,13
<b>1000</b>	9,69	0,16	5,04	0,12
1250	8,91	0,14	4,56	0,10
1600	7,87	0,11	4,10	0,08
<b>2000</b>	6,86	0,10	3,71	0,07
2500	5,75	0,08	3,24	0,06
3150	4,71	0,06	2,79	0,05
<b>4000</b>	3,81	0,05	2,42	0,04
5000	2,98	0,04	2,03	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,4	0,1	0,1
<b>125</b>	0,5	0,2	0,1
160	0,7	0,2	0,1
200	0,5	0,2	0,1
<b>250</b>	0,9	0,1	0,1
315	1,1	0,1	0,1
400	1,4	0,1	0,1
<b>500</b>	1,6	0,1	0,1
630	1,8	0,1	0,1
800	2,1	0,1	0,1
<b>1000</b>	2,3	0,1	0,1
1250	2,6	0,1	0,1
1600	2,8	0,1	0,1
<b>2000</b>	3,0	0,1	0,1
2500	3,2	0,1	0,1
3150	3,5	0,2	0,1
<b>4000</b>	3,6	0,2	0,1
5000	3,8	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub> (A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-106-7-44141\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 alternating blades 1200 x (300/400)mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades: alternating 6 blades of 1200x300mm and 6 blades of 1200x400mm

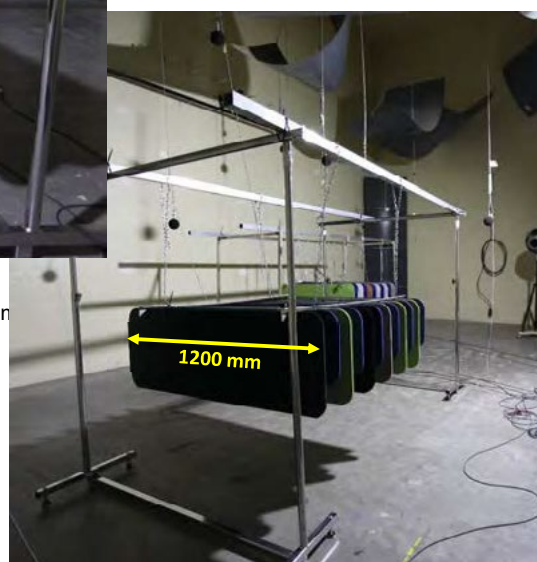
Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 400 mm

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 alternating blades of 1200 x (400/300)mm



**NOISE LAB**  
**REPORT Number A-2020LAB-106-7-44141\_E**

**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
 In this test one object = 1 baffle element with 12 blades (alternating 1200 x 300/400mm)

Two baffle elements were randomly hung up on a separate frame in the reverberation room.

The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
 Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 400mm  
 Because only 2 individual objects were tested, both were tested on a second location, and the results were averaged

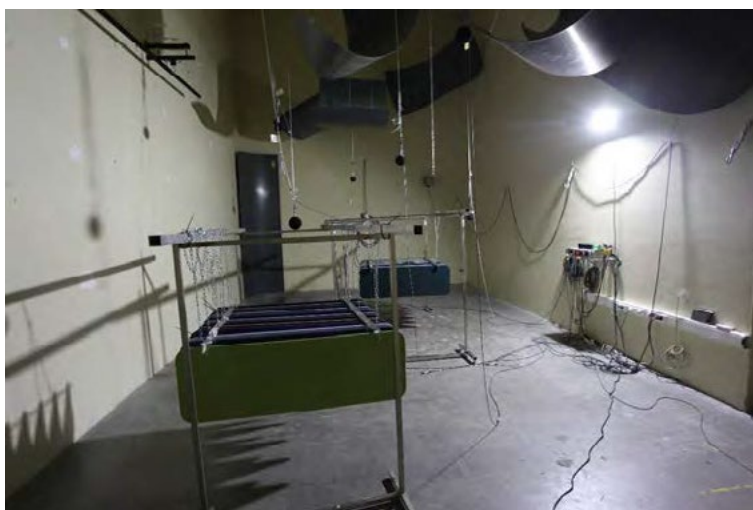


photo : testarrangement with 2 objects on test setup 1



photo : testarrangement with 2 objects on test setup 2

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**NOISE LAB**  
**REPORT Number A-2020LAB-106-6-44141\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 alternating blades 1200 x (200/400)mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere  
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<b>Date and reference of the request:</b>	7/10/2020	2020LAB-106
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Laboratory Engineer,

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-106-6-44141\_E

# A<sub>obj</sub>

### EQUIVALENT SOUND ABSORPTION AREA PER OBJECT

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

Identification number of test element: **6**

Test date: 6/11/2020

Reverberation room: V = 298,3 m<sup>3</sup> S<sub>tot</sub> = 279,9 m<sup>2</sup>

Room conditions during measurements:

	Empty room	With testelement
Temperature:	T = 17,5	17,2 °C
Atmospheric pressure:	p = 103,6	102,9 kPa
Relative humidity :	h <sub>r</sub> = 64	66 %

Type of test element: **individual object**

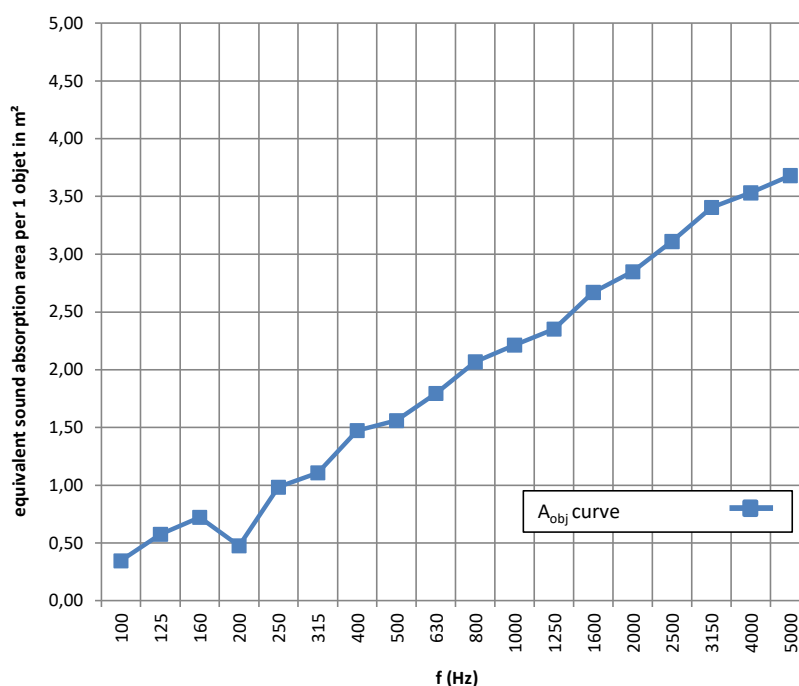
Construction characteristics:

\* using individual objects

Number of tested objects	2
Number of location setups in the reverberation room	2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
<b>63</b>			
80			
100	12,44	10,56	0,3
<b>125</b>	<b>10,03</b>	<b>8,11</b>	<b>0,6</b>
160	9,81	7,59	0,7
200	9,66	8,12	0,5
<b>250</b>	<b>10,27</b>	<b>7,25</b>	<b>1,0</b>
315	10,18	6,95	1,1
400	9,36	5,96	1,5
<b>500</b>	<b>9,13</b>	<b>5,75</b>	<b>1,6</b>
630	9,81	5,68	1,8
800	9,74	5,32	2,1
<b>1000</b>	<b>9,69</b>	<b>5,14</b>	<b>2,2</b>
1250	8,91	4,78	2,4
1600	7,87	4,22	2,7
<b>2000</b>	<b>6,86</b>	<b>3,80</b>	<b>2,8</b>
2500	5,75	3,31	3,1
3150	4,71	2,84	3,4
<b>4000</b>	<b>3,81</b>	<b>2,45</b>	<b>3,5</b>
5000	2,98	2,06	3,7

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,5
250	0,9
500	1,6
1000	2,2
2000	2,9
4000	3,5



**Note:** an individual object is not evaluated according to ISO 11654 (α<sub>w</sub> and class)

**Requested by:** Texdecor, Rue d'Hem, 2,59780 Willems

**TESTELEMANT:** (product name, for details see Annex 2)

**Baffle elements with 12 alternating blades 1200 x (200/400)mm - made of Slimpanel 9mm - suspension height 500mm**

**NOISE LAB**  
**REPORT Number A-2020LAB-106-6-44141\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	12,44	0,57	10,56	0,53
<b>125</b>	10,03	0,46	8,11	0,41
160	9,81	0,40	7,59	0,35
200	9,66	0,36	8,12	0,33
<b>250</b>	10,27	0,33	7,25	0,28
315	10,18	0,29	6,95	0,24
400	9,36	0,25	5,96	0,20
<b>500</b>	9,13	0,22	5,75	0,17
630	9,81	0,20	5,68	0,15
800	9,74	0,18	5,32	0,13
<b>1000</b>	9,69	0,16	5,14	0,12
1250	8,91	0,14	4,78	0,10
1600	7,87	0,11	4,22	0,08
<b>2000</b>	6,86	0,10	3,80	0,07
2500	5,75	0,08	3,31	0,06
3150	4,71	0,06	2,84	0,05
<b>4000</b>	3,81	0,05	2,45	0,04
5000	2,98	0,04	2,06	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,3	0,1	0,1
<b>125</b>	0,6	0,2	0,1
160	0,7	0,2	0,1
200	0,5	0,2	0,1
<b>250</b>	1,0	0,1	0,1
315	1,1	0,1	0,1
400	1,5	0,2	0,1
<b>500</b>	1,6	0,1	0,1
630	1,8	0,1	0,1
800	2,1	0,1	0,1
<b>1000</b>	2,2	0,1	0,1
1250	2,4	0,1	0,1
1600	2,7	0,1	0,1
<b>2000</b>	2,8	0,1	0,1
2500	3,1	0,1	0,1
3150	3,4	0,2	0,1
<b>4000</b>	3,5	0,2	0,1
5000	3,7	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub> (A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB

### REPORT Number A-2020LAB-106-6-44141\_E

#### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 alternating blades 1200 x (200/400)mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

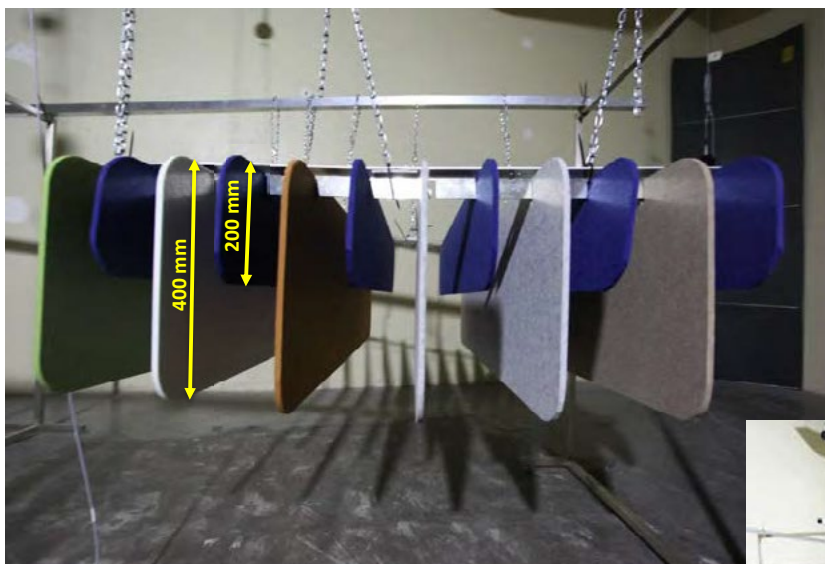
Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades: alternating 6 blades of 1200x200mm and 6 blades of 1200x400mm

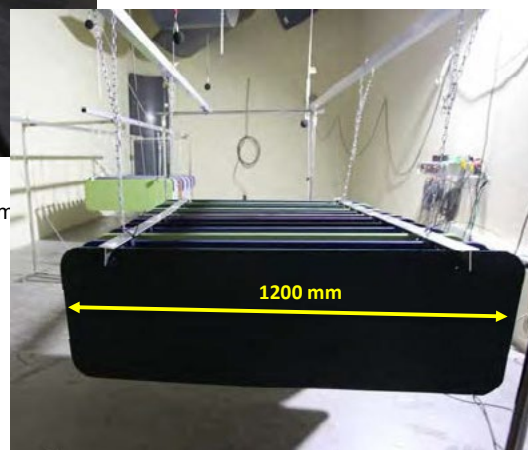
Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 400 mm

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 alternating blades of 1200 x (400/200)mm



**NOISE LAB**  
**REPORT Number A-2020LAB-106-6-44141\_E**

**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

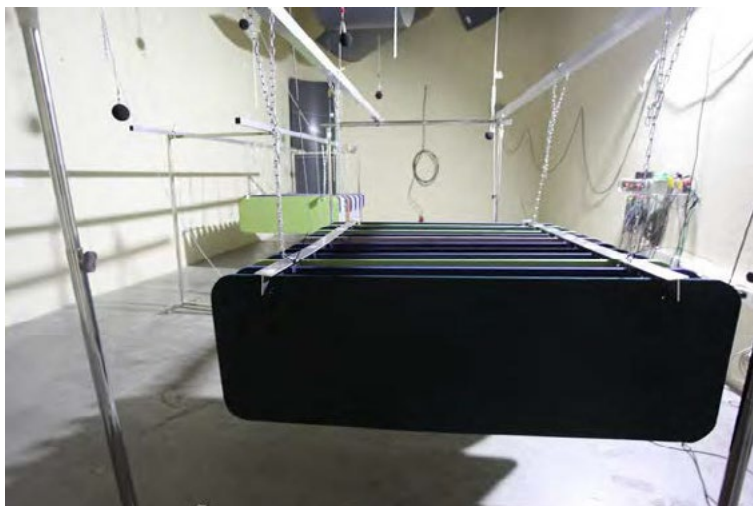
Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
 In this test one object = 1 baffle element with 12 blades (alternating 1200 x 200/400mm)

Two baffle elements were randomly hung up on a separate frame in the reverberation room.

The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
 Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 400mm  
 Because only 2 individual objects were tested, both were tested on a second location, and the results were averaged



photo : testarrangement with 2 objects on test setup 1



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N° 451-TEST  
 NBN EN ISO 17025:2017  
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**NOISE LAB**  
**REPORT Number A-2020LAB-106-9-44140\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 blades in wave - width 1200 mm - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere  
 ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
 BELAC is a signatory of all existing multilateral agreements and recognition agreements of International Laboratory Accreditation Cooperation (ILAC).  
 In this way, reports issued by BELAC accredited bodies are internationally accredited.

<b>Date and reference of the request:</b>	7/10/2020	2020LAB-106
<b>Date of receipt of the specimen(s):</b>	5/11/2020	9
<b>Date of construction:</b>	5/11/2020	
<b>Date of tests:</b>	5/11/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

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## NOISE LAB REPORT Number A-2020LAB-106-9-44140\_E

# A<sub>obj</sub>

### EQUIVALENT SOUND ABSORPTION AREA PER OBJECT

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

Identification number of test element: **9**

Test date: 5/11/2020

Reverberation room:

V = 298,3 m<sup>3</sup>

S<sub>tot</sub> = 279,9 m<sup>2</sup>

Room conditions during measurements:

Temperature:

Empty room  
 T = 17,5

With testelement  
 T = 17,6 °C

Atmospheric pressure:

p = 103,6

103,5 kPa

Relative humidity :

h<sub>r</sub> = 64

66 %

Type of test element:

individual object

Construction characteristics:

\* using individual objects

Number of tested objects

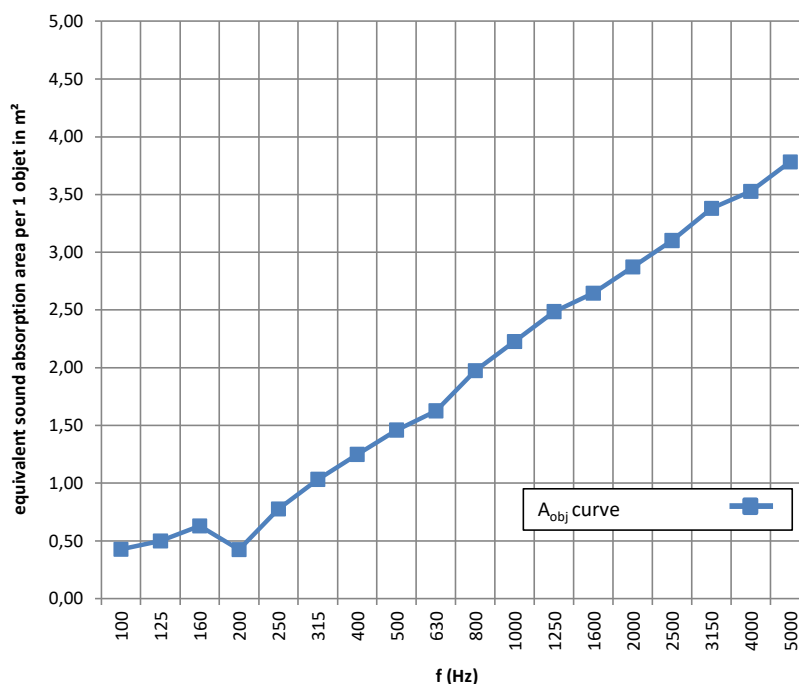
2

Number of location setups in the reverberation room

2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
<b>63</b>			
80			
100	12,44	10,20	0,4
<b>125</b>	<b>10,03</b>	<b>8,32</b>	<b>0,5</b>
160	9,81	7,81	0,6
200	9,66	8,27	0,4
<b>250</b>	<b>10,27</b>	<b>7,73</b>	<b>0,8</b>
315	10,18	7,10	1,0
400	9,36	6,31	1,2
<b>500</b>	<b>9,13</b>	<b>5,89</b>	<b>1,5</b>
630	9,81	5,91	1,6
800	9,74	5,43	2,0
<b>1000</b>	<b>9,69</b>	<b>5,12</b>	<b>2,2</b>
1250	8,91	4,66	2,5
1600	7,87	4,24	2,6
<b>2000</b>	<b>6,86</b>	<b>3,79</b>	<b>2,9</b>
2500	5,75	3,33	3,1
3150	4,71	2,86	3,4
<b>4000</b>	<b>3,81</b>	<b>2,47</b>	<b>3,5</b>
5000	2,98	2,06	3,8

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,5
250	0,7
500	1,4
1000	2,2
2000	2,9
4000	3,6



Note: an individual object is not evaluated according to ISO 11654 (α<sub>w</sub> and class)

Requested by: Texdecor, Rue d'Hem, 2,59780 Willems

TESTELEMANT: (product name, for details see Annex 2)

Baffle elements with 12 blades in wave - width 1200 mm - made of Slimpanel 9mm - suspension height 500mm

**NOISE LAB**  
**REPORT Number A-2020LAB-106-9-44140\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	12,44	0,57	10,20	0,52
<b>125</b>	10,03	0,46	8,32	0,42
160	9,81	0,40	7,81	0,36
200	9,66	0,36	8,27	0,33
<b>250</b>	10,27	0,33	7,73	0,29
315	10,18	0,29	7,10	0,24
400	9,36	0,25	6,31	0,20
<b>500</b>	9,13	0,22	5,89	0,18
630	9,81	0,20	5,91	0,16
800	9,74	0,18	5,43	0,13
<b>1000</b>	9,69	0,16	5,12	0,12
1250	8,91	0,14	4,66	0,10
1600	7,87	0,11	4,24	0,08
<b>2000</b>	6,86	0,10	3,79	0,07
2500	5,75	0,08	3,33	0,06
3150	4,71	0,06	2,86	0,05
<b>4000</b>	3,81	0,05	2,47	0,04
5000	2,98	0,04	2,06	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,4	0,2	0,1
<b>125</b>	0,5	0,2	0,1
160	0,6	0,2	0,1
200	0,4	0,1	0,1
<b>250</b>	0,8	0,1	0,1
315	1,0	0,1	0,1
400	1,2	0,1	0,1
<b>500</b>	1,5	0,1	0,1
630	1,6	0,1	0,1
800	2,0	0,1	0,1
<b>1000</b>	2,2	0,1	0,1
1250	2,5	0,1	0,1
1600	2,6	0,1	0,1
<b>2000</b>	2,9	0,1	0,1
2500	3,1	0,1	0,1
3150	3,4	0,2	0,1
<b>4000</b>	3,5	0,2	0,1
5000	3,8	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub> (A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-106-9-44140\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 blades in wave - width 1200 mm - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 blades in wave form by combining sheets of different height in the following order :

400 - 300 - 200 - 200 - 300 - 400 - 400 - 300 - 200 - 200 - 300 - 400 mm

Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 400 mm

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 blades in wave form





**NOISE LAB**  
**REPORT Number A-2020LAB-106-9-44140\_E**

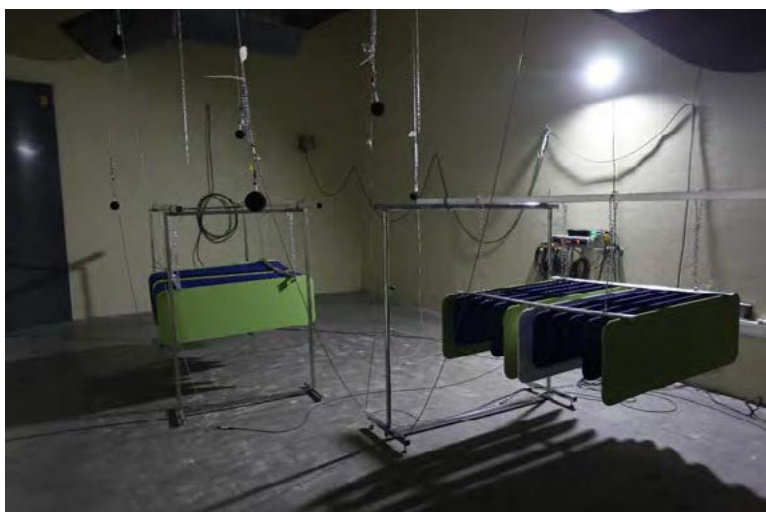
**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard  
 In this test one object = 1 baffle element with 12 blades in wave

Two baffle elements were randomly hung up on a separate frame in the reverberation room.

The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.  
 Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades of 400 mm  
 Because only 2 individual objects were tested, both were tested on a second location, and the results were averaged



*photo : testarrangement with 2 objects on test setup 1*



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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

**NOISE LAB**  
**REPORT Number A-2020LAB-011-05-44028\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements with 12 trapezium blades 1200x(150/300) - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption  
 NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere  
 ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
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<b>Date and reference of the request:</b>	21/02/2020	2020LAB-011
<b>Date of receipt of the specimen(s):</b>	16/07/2020	05
<b>Date of construction:</b>	16/07/2020	
<b>Date of tests:</b>	16/07/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-011-05-44028\_E

# A<sub>obj</sub>

### EQUIVALENT SOUND ABSORPTION AREA PER OBJECT

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

**Identification number of test element:** 05

**Test date:** 16/07/2020

**Reverberation room:**

V = 298,3 m<sup>3</sup>      S<sub>tot</sub> = 279,9 m<sup>2</sup>

**Room conditions during measurements:**

**Temperature:**

Empty room      With testelement  
 T = 21,0      21,0 °C

**Atmospheric pressure:**

p = 101,5      101,6 kPa

**Relative humidity :**

h<sub>r</sub> = 69      69 %

**Type of test element:**

individual object

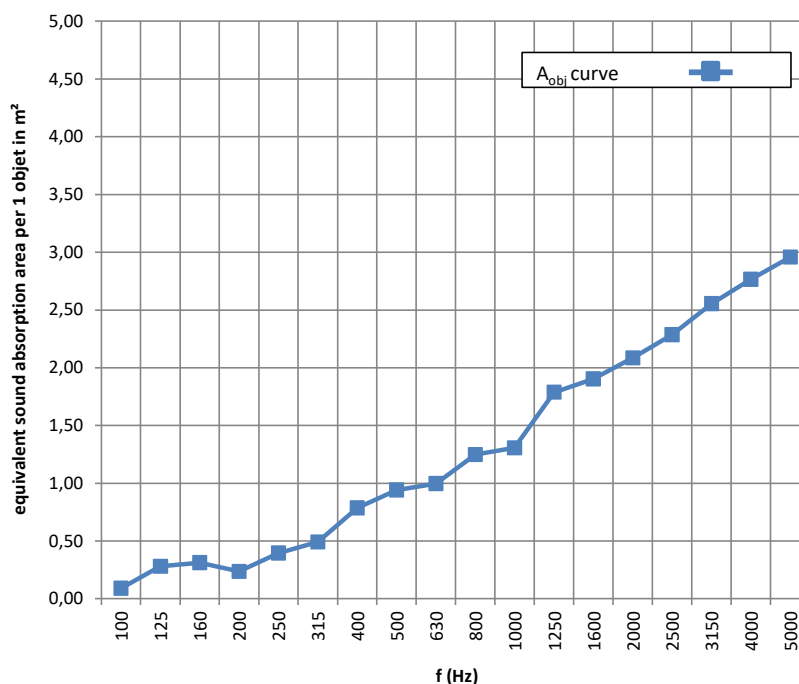
**Construction characteristics:**

\* using individual objects

Number of tested objects      2  
 Number of location setups in the reverberation room      2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
63			
80			
100	10,93	10,50	0,1
125	9,62	8,65	0,3
160	9,43	8,40	0,3
200	9,92	9,04	0,2
250	9,88	8,50	0,4
315	9,51	7,96	0,5
400	8,89	6,89	0,8
500	8,87	6,58	0,9
630	9,08	6,60	1,0
800	9,02	6,15	1,2
1000	8,84	5,97	1,3
1250	8,30	5,13	1,8
1600	7,51	4,71	1,9
2000	6,66	4,22	2,1
2500	5,75	3,72	2,3
3150	4,89	3,22	2,6
4000	4,08	2,78	2,8
5000	3,24	2,32	3,0

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,2
250	0,4
500	0,9
1000	1,4
2000	2,1
4000	2,8



**Note:** an individual object is not evaluated according to ISO 11654 ( $\alpha_w$  and class)

**Requested by:** Texdecor, Rue d'Hem, 2,59780 Willems

**TESTELEMANT:** (product name, for details see Annex 2)

**Baffle elements with 12 trapezium blades 1200x(150/300) - made of Slimpanel 9mm - suspension height 500mm**

**NOISE LAB**  
**REPORT Number A-2020LAB-011-05-44028\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	10,93	0,54	10,50	0,53
<b>125</b>	9,62	0,45	8,65	0,43
160	9,43	0,39	8,40	0,37
200	9,92	0,36	9,04	0,35
<b>250</b>	9,88	0,32	8,50	0,30
315	9,51	0,28	7,96	0,26
400	8,89	0,24	6,89	0,21
<b>500</b>	8,87	0,22	6,58	0,19
630	9,08	0,20	6,60	0,17
800	9,02	0,17	6,15	0,14
<b>1000</b>	8,84	0,15	5,97	0,13
1250	8,30	0,13	5,13	0,10
1600	7,51	0,11	4,71	0,09
<b>2000</b>	6,66	0,09	4,22	0,07
2500	5,75	0,08	3,72	0,06
3150	4,89	0,06	3,22	0,05
<b>4000</b>	4,08	0,05	2,78	0,04
5000	3,24	0,04	2,32	0,04

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,1	0,2	0,1
<b>125</b>	0,3	0,2	0,1
160	0,3	0,2	0,1
200	0,2	0,1	0,1
<b>250</b>	0,4	0,1	0,1
315	0,5	0,1	0,1
400	0,8	0,1	0,1
<b>500</b>	0,9	0,1	0,1
630	1,0	0,1	0,1
800	1,2	0,1	0,1
<b>1000</b>	1,3	0,1	0,0
1250	1,8	0,1	0,1
1600	1,9	0,1	0,1
<b>2000</b>	2,1	0,1	0,1
2500	2,3	0,1	0,1
3150	2,6	0,1	0,1
<b>4000</b>	2,8	0,2	0,1
5000	3,0	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub>(A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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N° 451-TEST  
 NBN EN ISO 17025:2017  
 EA MLA signatory

## NOISE LAB REPORT Number A-2020LAB-011-05-44028\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements with 12 trapezium blades 1200x(150/300) - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 trapezium blades of 1200 x (150/300) mm

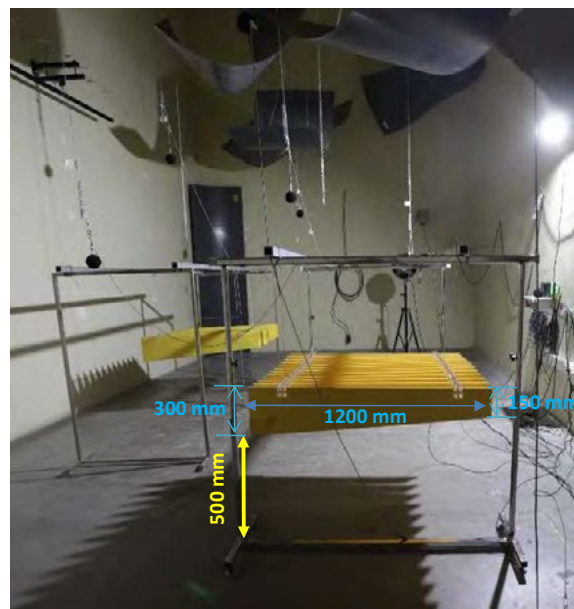
Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the trapezium blades

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 trapezium blades of 1200x(150/300) mm



**NOISE LAB**  
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**ANNEX 4: photographs of the test element or the test arrangement**

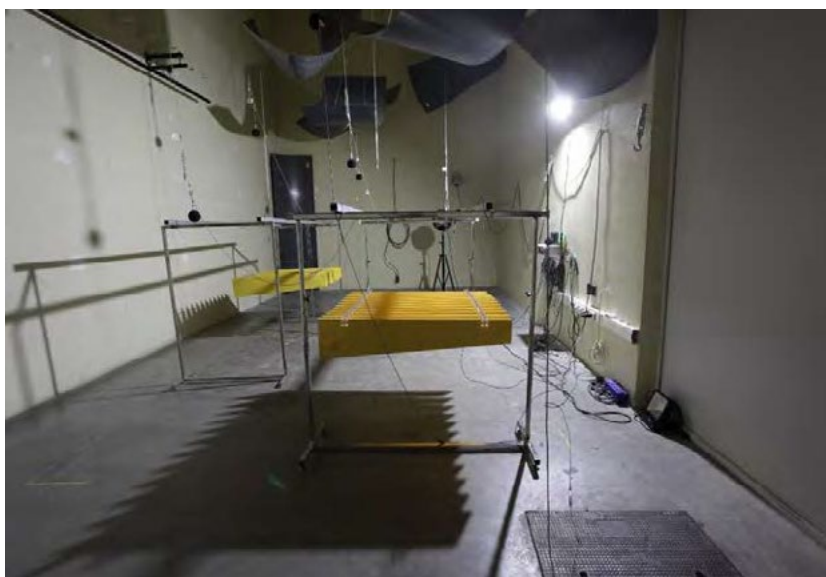
*Description of the assembly or drawing or photo*

Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard

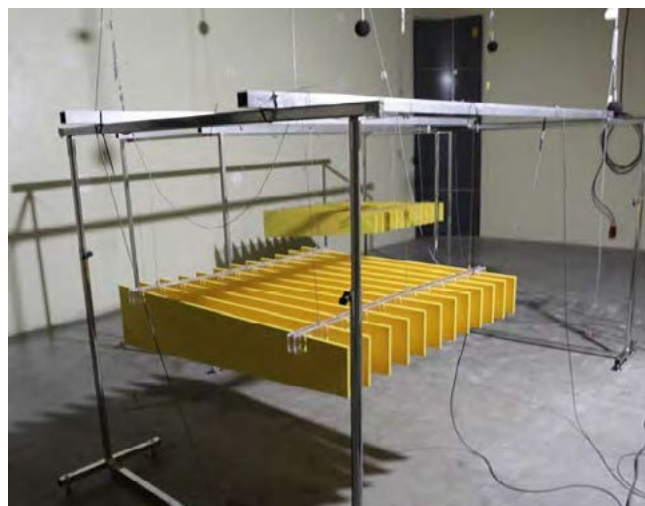
In this test one object = 1 baffle element with 12 trapezium blades of 1200 x (150/300) mm

Two baffle elements were randomly hung up on a separate frame in the reverberation room.

The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room. Suspension height : 500mm from the floor of the reverberation room and lower edge of the trapezium blades



*photo : testarrangement with 2 objects on test setup 1*



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**NOISE LAB**  
**REPORT Number A-2020LAB-011-04-44028\_E**

**Customer :** Texdecor  
 Rue d'Hem, 2  
 59780 Willems  
 France

**Contacts :** **Client :** Julie Truquet  
**Noise lab :** Els Meulemans

**Tests :** Measurement of sound absorption in the reverberation room

**Product name :** Baffle elements of 12 alternating trapezium blades 1200x(150/300) - made of Slimpanel 9mm - suspension height 500mm

**Normative references:**  
**NBN EN ISO 354:2003** Acoustics - Measurement of sound absorption in a reverberation room

NBN EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

NBN ISO 9613-1:1996 Acoustics - Attenuation of sound during propagation outdoors -  
 part 1 : Calculation of the absorption of sound by the atmosphere

ISO 12999-2:2020 Acoustics - Determination and application of measurement uncertainties in building acoustics  
 Part 2: Sound absorption

To perform the above measurements, the laboratory of Daidalos Peutz is accredited by BELAC, "The Belgian Accreditation Body", under the certificate nr N°451-TEST. The activities covered by this accreditation certificate are covered by the EA MLA.  
 BELAC is a signatory of all existing multilateral agreements and recognition agreements of International Laboratory Accreditation Cooperation (ILAC).  
 In this way, reports issued by BELAC accredited bodies are internationally accredited.

<b>Date and reference of the request:</b>	21/02/2020	2020LAB-011
<b>Date of receipt of the specimen(s):</b>	16/07/2020	04
<b>Date of construction:</b>	16/07/2020	
<b>Date of tests:</b>	16/07/2020	
<b>Date of preparation of the report:</b>	6/11/2020	

This test report together with its annexes contains : 10 pages and must be multiplied only in its entirety

Technical Manager,

Paul Mees

Laboratory Engineer,

Els Meulemans

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**NOISE LAB**  
**REPORT Number A-2020LAB-011-04-44028\_E**

**A<sub>obj</sub>**

**EQUIVALENT SOUND ABSORPTION AREA PER OBJECT**

EN ISO 354:2003  
 EN ISO 11654:1997

Acoustics - Measurement of sound absorption in a reverberation room  
 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

Identification number of test element: **04**

Test date: 16/07/2020

Reverberation room: V = 298,3 m<sup>3</sup> S<sub>tot</sub> = 279,9 m<sup>2</sup>

Room conditions during measurements:

	Empty room	With testelement
Temperature:	T = 21,0	21,0 °C
Atmospheric pressure:	p = 101,5	101,6 kPa
Relative humidity :	h <sub>r</sub> = 69	69 %

Type of test element: individual object

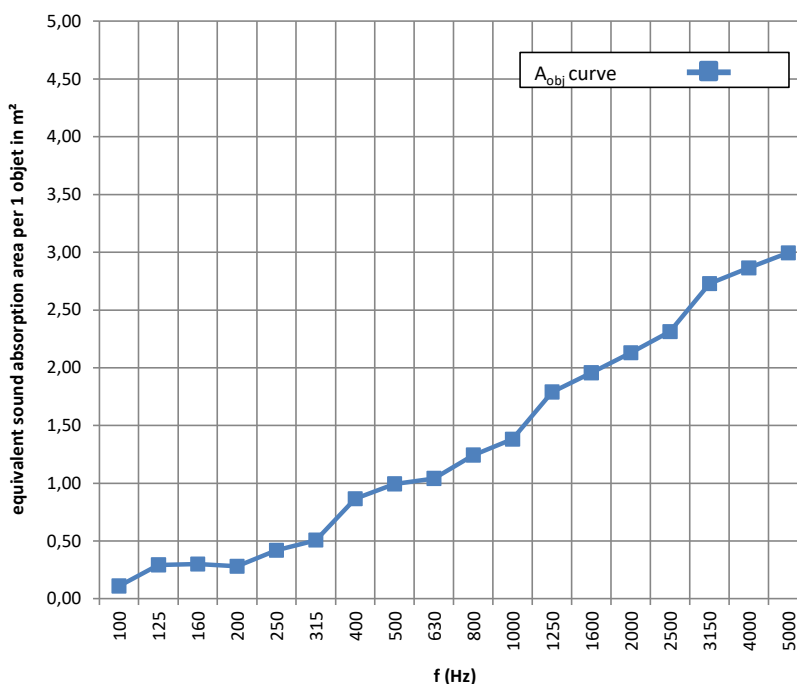
Construction characteristics:

\* using individual objects

Number of tested objects	2
Number of location setups in the reverberation room	2

f(Hz)	T <sub>1</sub> (s)	T <sub>2</sub> (s)	A <sub>obj</sub> (m <sup>2</sup> )
50			
63			
80			
100	10,93	10,41	0,1
125	9,62	8,61	0,3
160	9,43	8,43	0,3
200	9,92	8,89	0,3
250	9,88	8,43	0,4
315	9,51	7,92	0,5
400	8,89	6,74	0,9
500	8,87	6,49	1,0
630	9,08	6,52	1,0
800	9,02	6,15	1,2
1000	8,84	5,86	1,4
1250	8,30	5,13	1,8
1600	7,51	4,66	2,0
2000	6,66	4,19	2,1
2500	5,75	3,70	2,3
3150	4,89	3,15	2,7
4000	4,08	2,75	2,9
5000	3,24	2,31	3,0

f(Hz)	A <sub>obj</sub> (m <sup>2</sup> )
125	0,2
250	0,4
500	1,0
1000	1,5
2000	2,1
4000	2,9



Note: an individual object is not evaluated according to ISO 11654 (α<sub>w</sub> and class)

Requested by: Texdecor, Rue d'Hem, 2,59780 Willems

TESTELEMANT: (product name, for details see Annex 2)

Baffle elements of 12 alternating trapezium blades 1200x(150/300) - made of Slimpanel 9mm - suspension height 500mm



**NOISE LAB**  
**REPORT Number A-2020LAB-011-04-44028\_E**

**ANNEX 1 : PRECISION**

The relative standard deviation of the reverberation time T20

f	T <sub>1</sub> (s)	ε <sub>20</sub> (s)	T <sub>2</sub> (s)	ε <sub>20</sub> (s)
50	0,0	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0	0,0
80	0,0	0,0	0,0	0,0
100	10,93	0,54	10,41	0,52
<b>125</b>	9,62	0,45	8,61	0,43
160	9,43	0,39	8,43	0,37
200	9,92	0,36	8,89	0,34
<b>250</b>	9,88	0,32	8,43	0,30
315	9,51	0,28	7,92	0,26
400	8,89	0,24	6,74	0,21
<b>500</b>	8,87	0,22	6,49	0,19
630	9,08	0,20	6,52	0,17
800	9,02	0,17	6,15	0,14
<b>1000</b>	8,84	0,15	5,86	0,12
1250	8,30	0,13	5,13	0,10
1600	7,51	0,11	4,66	0,09
<b>2000</b>	6,66	0,09	4,19	0,07
2500	5,75	0,08	3,70	0,06
3150	4,89	0,06	3,15	0,05
<b>4000</b>	4,08	0,05	2,75	0,04
5000	3,24	0,04	2,31	0,03

ε<sub>20</sub> = The relative standard deviation of the reverberation time T20, evaluated over a 20dB decay range, can be estimated by the following formula (see 8.2.2. van ISO 354:2003)

$$\varepsilon_{20}(T) = T \sqrt{\frac{2,42 + 3,59/N}{f T}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

f (Hz) = centre frequency of the one-third-octave band

N = number of decay curves evaluated

The relative standard deviation of the sound absorption coefficient

f	A <sub>obj</sub> (m <sup>2</sup> )	ε <sub>Aobj</sub>	δ <sub>95</sub> (A <sub>obj</sub> )
50	0,0	0,0	0,0
<b>63</b>	0,0	0,0	0,0
80	0,0	0,0	0,0
100	0,1	0,2	0,1
<b>125</b>	0,3	0,2	0,1
160	0,3	0,2	0,1
200	0,3	0,1	0,1
<b>250</b>	0,4	0,1	0,1
315	0,5	0,1	0,1
400	0,9	0,1	0,1
<b>500</b>	1,0	0,1	0,1
630	1,0	0,1	0,1
800	1,2	0,1	0,1
<b>1000</b>	1,4	0,1	0,0
1250	1,8	0,1	0,1
1600	2,0	0,1	0,1
<b>2000</b>	2,1	0,1	0,1
2500	2,3	0,1	0,1
3150	2,7	0,1	0,1
<b>4000</b>	2,9	0,2	0,1
5000	3,0	0,2	0,1

ε(A<sub>obj</sub>) = The relative standard deviation of the sound absorption coefficient

$$\varepsilon(A_{obj}) = \frac{55,3 V}{c S} \sqrt{\left(\frac{\varepsilon_{20}(T_2)}{T_2^2}\right)^2 + \left(\frac{\varepsilon_{20}(T_1)}{T_1^2}\right)^2}$$

δ<sub>95</sub>(A<sub>obj</sub>) = 95% confidence interval

$$\delta_{95}(A_{obj}) = \frac{1,96 \varepsilon(\alpha)}{\sqrt{N}}$$

T<sub>1</sub> (s) = reverberation time of the empty room

T<sub>2</sub> (s) = reverberation time of the reverberation room after with the test specimen

V = Volume of the reverberation room

c = the propagation speed of sound in air

S = number of decay curves evaluated

N = the area, in square metres, covered by the test specimen

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## NOISE LAB REPORT Number A-2020LAB-011-04-44028\_E

### ANNEX 2: Description test items by manufacturer

The test sample description given by manufacturer is checked visually as good as possible by the laboratory.  
 The correspondence between the test element and the commercialized product is the sole responsibility of the manufacturer

Baffle elements of 12 alternating trapezium blades 1200x(150/300) - made of Slimpanel 9mm - suspension height 500mm

SlimPanel - felt with recycled polyester fibres (PET)

Thickness : 9mm

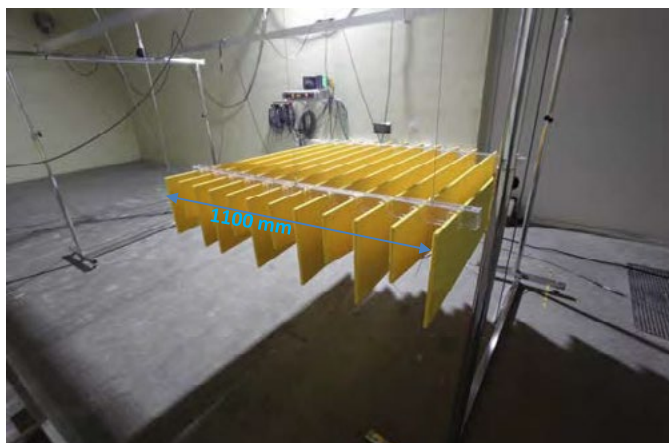
Mass per unit area : 1900 g/m<sup>2</sup>

Baffle element with 12 trapezium blades of 1200 x (150/300) mm

Distance between the different blades was 90mm

Suspension height : 500mm from the floor of the reverberation room and lower edge of the blades

Product specifications are based on client's declaration



1 object = 1 baffle element with 12 alternating trapezium blades of 1200x(150/300) mm

**NOISE LAB**  
**REPORT Number A-2020LAB-011-04-44028\_E**

**ANNEX 4: photographs of the test element or the test arrangement**

*Description of the assembly or drawing or photo*

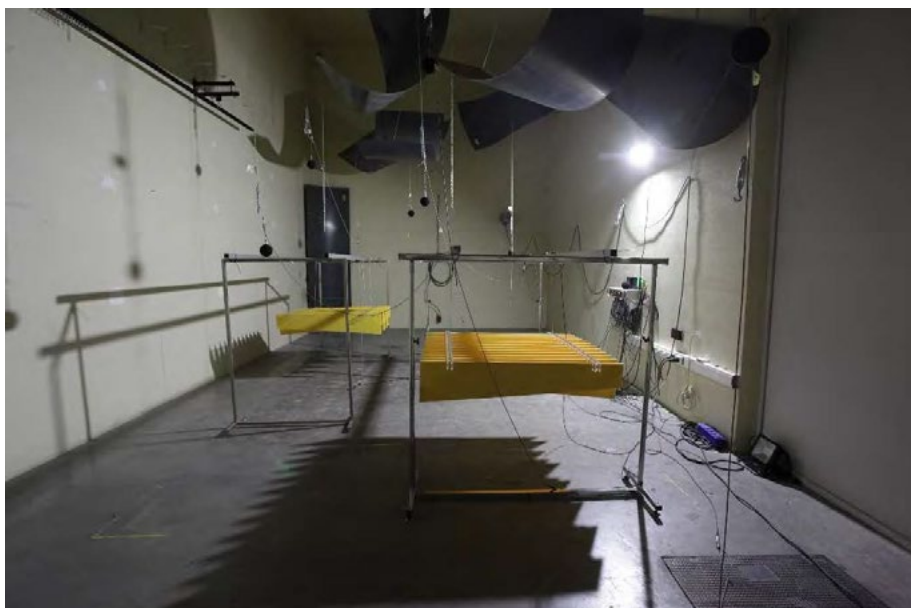
Two baffle elements were tested as individual objects, arranged randomly in the reverberation room, spaced at least 2 m apart, in accordance with the EN ISO 354 standard

In this test one object = 1 baffle element with 12 trapezium blades of 1200 x (150/300) mm

Two baffle elements were randomly hung up on a separate frame in the reverberation room.

The baffle elements were mounted 500mm above the room floor using mettalic posts the way that specimen sides wouldn't parallel to the side walls of the room.

Suspension height : 500mm from the floor of the reverberation room and lower edge of the trapezium blades



*photo : testarrangement with 2 objects on test setup 1*

